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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* JOHN GAVIN MACDONALD, KEVIN P. MCGRATH,
IRENE KUZNETSOV, JAEHO KIM, and LEI HUANG

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Appeal 2010-003910
Application 10/686,933
Technology Center 1600

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Before ERIC GRIMES, LORA M. GREEN, and STEPHEN WALSH,
*Administrative Patent Judges*.

WALSH, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

This is an appeal under 35 U.S.C. § 134(a) involving claims to a substrate for reducing odor. The Patent Examiner rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

## STATEMENT OF THE CASE

Claims 31, 35-45, 47, 48, and 50-53 are on appeal. Claim 31 is illustrative:

31. A substrate for reducing odor, said substrate being porous and comprising a nonwoven, woven, or paper web, said substrate containing colloidal silica nanoparticles configured to adsorb one or more odorous compounds, said silica nanoparticles having an average size of from about 1 to about 50 nanometers and a surface area of from about 50 to about 1000 square meters per gram, wherein the silica nanoparticles are relatively nonporous and thus have a pore volume of less than about 0.4 milliliters per gram.

The Examiner rejected the claims as follows:[2]

- claims 31, 35-43, 47, 48, 50 and 53 under 35 U.S.C. § 103(a) as being unpatentable over Honda[3] and Takaoka;[4] and
- claims 31, 35-45, 48, and 50-53 under 35 U.S.C. § 103(a) as being unpatentable over Honda, Takaoka and Beaverson;[5] and

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[2] The Examiner also provisionally rejected claims 31, 38, 43-47 on grounds of non-statutory double patenting and claims 31, 43 and 53 on the grounds of non-statutory double patenting. (Ans. 2-3). However, Appellants have not presented these rejections for review. (*See* App. Br. 3; Reply Br. 2; grounds of rejection to be reviewed on appeal do not include double patenting rejections).

[3] Patent Application Publication No. EP 1188854 A1 by Hidenobu Honda et al., published Mar. 20, 2002.

[4] Patent Application Publication No. US 2002/0006425 A1 by Kazuchiyo Takaoka et al., published Jan. 17, 2002.

• claims 31, 35-43, 50 and 53 under 35 U.S.C. § 103(a) as being unpatentable over Honda, Takaoka and Ray.[6]

OBVIOUSNESS

*The Issues*

The Examiner's position is that Honda taught fibers impregnated with inert titanium and coated with nanoparticles of titanium and silicon oxide. (Ans. 3). The Examiner found that Honda taught that the purpose of the silica particles was for odor-removal. (*Id.*). The Examiner also found that Honda taught that the size of the silica nanoparticles was, for example, 7 nm and that the specific surface area was from 100 to 300 $m^2/g$. (*Id.*). Additionally, the Examiner found that Honda taught that its fibers were dipped in a coating solution of nanoparticles which completely coated the surface of the fibers. (*Id.*). However, the Examiner found that Honda did not teach "the particular silicon nanoparticles of [the] instant claims." (*Id.* at 4).

The Examiner found that "Takaoka teaches the use of SNOWTEX-AK nanoparticles for removing odors." (*Id.* at 4). The Examiner found that SNOWTEX-AK particles read on the particles of the instant invention and are disclosed in the instant Specification. (*Id.*, citing Spec. p. 6 and Ex. 2). According to the Examiner, it would have been obvious to a person of ordinary skill in the art at the time the invention was made "to use [the] SNOWTEX-AK of Takaoka as the odor absorber in Honda, either by

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[5] Patent Application Publication No. WO 03/025067 A1 by Neil Beaverson et al., published Mar. 27, 2003.
[6] US Patent No. 5,762,643 issued to Carl D. Ray et al., Jun. 9, 1998.

combining SNOWTEX-AK particles with those of Honda or by replacing the particles of Honda with SNOWTEX-AK." (Ans. 4). The Examiner reasoned that it is both obvious to combine materials recognized in the art as useful for the same purpose, and to substitute elements recognized in the art as performing the same function. (*Id.*).

Appellants contend that Takaoka did not teach a substrate containing "colloidal silica nanoparticles configured to adsorb one or more odorous compounds," as recited in claim 31. (App. Br. 4). According to Appellants, "Takao[k]a fails to teach one skilled in the art that the Snowtex particles are even capable of any kind of odor control, let alone adsorption." (*Id.* at 5). In particular, Appellants contend that "the only use disclosed by Takao[k]a for the inorganic fine particles (of which Snowtex is disclosed as a possibility) is simply to separate the photoreactive semiconductor from the organic fine particles…." (*Id.*; Reply Br. 2-3). Thus, Appellants assert that the Examiner's combination relies on impermissible hindsight because Takaoka did not disclose using Snowtex-AK to adsorb odor. (App. Br. 8; Reply Br. 4).

The issue with respect to these rejections is whether Takaoka would have taught or suggested including Snowtex-AK colloidal silica nanoparticles in Honda's substrate so that the nanoparticles would be configured to adsorb one or more odorous compounds.

*Findings of Fact*

1. We agree with the Examiner's findings concerning the scope and content of Honda's disclosure. (*See* Ans. 3-6).

2. Takaoka disclosed a photoreactive agent for removing harmful materials such as malodor. (Takaoka, Abstract).

3. Takaoka disclosed that its photoreactive agent comprised a substrate, a photoreactive semiconductor, and organic fine particles coated with inorganic fine particles. (*Id.*).

4. Takaoka disclosed that the inorganic fine particles used in its invention include commercially available colloidal silica such as Snowtex-AK. (*Id.* at [0097]-[0105]).

5. Takaoka disclosed that "the inorganic fine particle component is located between the photoreactive semiconductor and the organic fine particle component, so that the organic fine particle component can markedly avoid the strong influence of oxidative decomposition by the photoreactive semiconductor." (*Id.* at [0052]).

6. Appellants' Specification states that the "invention is directed to colloidal nanoparticles configured to reduce various types of odors." (Spec. 4: 33 - 5: 1).

7. The Specification disclosed that Snowtex-AK may be used as the colloidal nanoparticles in the invention. (*Id.* at 6: 9).

*Principles of Law*

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of presenting a prima facie case of obviousness. *See In re Rijckaert*, 9 F.3d 1531, 1532 (Fed. Cir. 1993).

It is well-established that a conclusion that the claimed subject matter is prima facie obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one

of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. *See In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988).

"It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious…." *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992).

*Analysis*

We agree with Appellants that Takaoka did not disclose that its Snowtex-AK nanoparticles were "configured to adsorb one or more odorous compounds," as recited in independent claim 31. Rather, Takaoka specifically disclosed using inorganic fine particles such as Snowtex-AK to protect the organic fine particle component in its composition from the "strong influence of oxidative decomposition by the photoreactive semiconductor" component in the composition. (*See* FF-5). The portions of Takaoka which the Examiner relied upon establish only that Takaoka's composition *overall* was directed to odor removal, not that Snowtex-AK adsorbed odorous compounds. The evidence does not support the Examiner's finding that Takaoka taught the use of SNOWTEX-AK nanoparticles for removing odors. (*See* Ans. 7; FF-4). Without such a teaching, there is insufficient explanation that one of ordinary skill in the art would have been motivated to combine Takaoka's Snowtex-AK nanoparticles with Honda's fiber substrate, either as an additional component or as a substitute for Honda's photocatalyst. *See In re Fine*, 837 F.2d at 1074. In other words, the Examiner has not supported the basis

for the rejection; i.e., that the materials were "recognized in the art as useful for the same purpose" (*see* Ans. 4), with sufficient evidence. In the absence of such evidence, the rejection rests on impermissible hindsight. (*See* FF-8, 9; *see also, Fritch*, 972 F.2d at 1266).

In the rejections over Honda, Takaoka and Beaverson, and over Honda, Takaoka and Ray, neither Beaverson nor Ray cure the hindsight deficiency in the combination of Honda and Takaoka just discussed.

Accordingly we reverse each of the obviousness rejections.

## CONCLUSION OF LAW

The evidence of record is insufficient to establish that Takaoka taught or suggested including Snowtex-AK colloidal silica nanoparticles in Honda's substrate so that the nanoparticles would be configured to adsorb one or more odorous compounds.

## SUMMARY

We reverse the rejection of claims 31, 35-43, 47, 48, 50 and 53 under 35 U.S.C. § 103(a) as being unpatentable over Honda and Takaoka; and

we reverse the rejection of claims 31, 35-45, 48, and 50-53 under 35 U.S.C. § 103(a) as being unpatentable over Honda, Takaoka and Beaverson; and

we reverse the rejection of claims 31, 35-43, 50 and 53 under 35 U.S.C. § 103(a) as being unpatentable over Honda, Takaoka and Ray.

REVERSED

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